



**Medical Math Contest  
2007 State Competition**

Contestant # \_\_\_\_\_

1. If a patient has a radial pulse of 98 and an apical pulse of 110, what is the pulse deficit?  
a. -12                      b. 110                      c. 12                      d. 208
2. A patient weights 150 lbs. What is this in kilograms?  
a. 330                      b. 68.18                      c. 75                      d. 147.8
3. If a patient is 5'7" tall, what is this in centimeters? (round to the nearest cm)  
a. 170                      b. 26                      c. 67                      d. 226
4. Identify which of the following is the strongest ratio solution?  
a. 1:10                      b. 1:2                      c. 1:4                      d. 1:8
5. A patient's temperature was recorded as 100.7° F. What is the patient's temperature in Celsius to the nearest 10th?  
a. .23.9°                      b. 38.2°                      c. 73.7°                      d. 87.9°
6. Which of the following metric abbreviations is incorrect?  
a. 2 mg                      b. 0.2 mg                      c. .2 mg                      d. 20 g

**Convert the following metric measures.**

7. 100 mg = \_\_\_\_\_ g  
a. 0.1                      b. 1                      c. 10                      d. 0.01
8. 0.3 mg = \_\_\_\_\_ mcg  
a. 30                      b. 300                      c. 0.003                      d. 3000
9. 10cc = \_\_\_\_\_ mL  
a. 100                      b. 1                      c. 0.10                      d. 10
10. 700 mcg = \_\_\_\_\_ mg  
a. 70                      b. 7                      c. 0.7                      d. 0.07
11. A nurse is instructed to give a patient 30 mg/kg/day of amoxicillin. If the patient weighs 110 pounds, how much amoxicillin should the patient receive daily?  
a. 3.7 mg                      b. 1320 mg                      c. 1500 mg                      d. 3300 mg

**Determine the value of X in the following proportions. Express answers to the nearest tenth and include unit of measures.**

12.  $12.5 \text{ mg} : 2 \text{ tab} = 18.75 \text{ mg} : X \text{ tab}$   
a. 1 tab      b. 2 tab      c. 3tab      d. 2.5 tab
13.  $30 \text{ U} : 1.5\text{mL} = 25 \text{ U} : X \text{ mL}$   
a. 1.0 U      b. 1.25mL      c. 1.25 U      d. 1.3 mL
14.  $40 \text{ mg} : 2.5 \text{ mL} = 30 \text{ mg} : X \text{ mL}$   
a. 1.9mL      b. 2.0mL      c. 1.9mg      d. 2.0 mg
15.  $0.6 \text{ mg} : 1.1 \text{ mL} = 0.8 \text{ mg} : X \text{ ml}$   
a. 1.5 mL      b. 1.46      c. 0.88 mL      d. 0.6 mL
16.  $36 \text{ mg} : 2 \text{ mL} = 24 \text{ mg} : X \text{ mL}$   
a. 36 x      b. 1.3 mL      c. 3 mL      d. 48 mg

**Solve the following problems.**

17. A patient is to receive 1 oz. of milk of magnesia. How many Tbsp should the patient take?  
a. 1 Tbsp      b. 1 ½ Tbsp      c. 2 Tbsp      d. 3 Tbsp
18. You have just given 2 tablets with a dosage strength of 3.5 mg each. What was the total dosage administered?  
a. 12.25 mg      b. 2 mg      c. 3.5 mg      d. 7 mg
19. Your patient is to receive a dosage of 7.5 mg and you have only one tablet labeled 3.75 mg. How many more milligrams must you give?  
a. 3.75      b. 6.5      c. 1      d. 3.25
20. How many ounces are there in 1.232 kilograms?  
a. 2.71      b. .58      c. 123.2      d. 44

21. How many feet are in 62 meters?  
a. 744      b. 200      c. 5.16      d. 620
22. A total regimen of a drug calls for 880 mg to be given. If two doses are 80 mg, how many doses will have to be given?  
a. 22      b. 11      c. 8      d. 44
23. For an order of 0.25 mg Lanoxin available as 0.5 mg/2mL, how many milliliters will be given?  
a. .50      b. 5.0      c. 1      d. 0.1
24. If there are 30 mL of dextrose in 500 mL, what percent solution would it be?  
a. 60%      b. 30%      c. 15%      d. 6%
25. A liter IV bag is running at 50 mL/hour. How long will it last?  
a. 10 hours      b. 20 hours      c. 5 hours      d. 50 hours
26. The physician wants the patient to receive an IV of 2,800 mL every 24 hours. What would the pump be set on (mL/hr)?  
a. 116mL/hr      b. 2800 mL/hr      c. 24 mL/hr      d. 67 mL/hr
27. You must give your patient a dosage of 2.2 mg but have only two tablets labeled 0.55 mg. What additional dosage in milligrams will you need?  
a. 0.55      b. 1.1      c. 2.2      d. 1.55
28. An order requires 30 mEq of potassium phosphate. What you have available is 4.4 mEq/ml. How many milliliters will you put in the IV bag?  
a. 132      b. 30      c. 6.82      d. 34.4
29. A drug is available as 0.45 g/fluid ounce. You are to administer 15 mg. How many milliliters will that be?  
a. 6.75      b. 2.22      c. 0.03      d. 1

30. A patient is receiving 40 mg of ranitidine in 20 cc of D5W every six hours. The IV set delivers 15 gtts/cc. The med is to be administered over 30 minutes. How many drops per minute should the nurse time the IV?
- a. 300      b. 40      c. 25      d. 10
31. A dose of 0.75g of a drug is ordered, but the drug comes in the form of a scored tablet containing 500 mg of the drug. How many tablets should the patient be given?
- a.  $\frac{1}{2}$       b.  $1\frac{1}{2}$       c. 3      d. 4
32. On hand, is a bottle containing 300 mL of a 25% solution of bleach and water. How much water should be added to make a 10% solution?
- a. 450 mL      b. 250 mL      c. 75 mL      d. 30 mL
33. An order reads:  
Give 0.3 mg of drug A and 65 mg of drug B  
The label reads:  
Drug A 0.5 mg /  $\frac{1}{2}$  cc  
Drug B 0.075 g / 1 cc  
How much fluid will you have in your syringe?
- a. 1.3 cc      b. 1.2 cc      c.  $1\frac{1}{2}$  cc      d. 3 cc
34. You are to prepare a 300 mcg dose. The medication is labeled 0.4 mg/mL. How many mL will you need for the prescribed dose?
- a. 0.12 mL      b. 1.2 mL      c. 0.8 mL      d. 8 mL
35. A patient's symptoms first appeared exactly 5 hrs. 28 min. ago. If it is exactly 3:47 p.m. right now, at what time did the symptoms first appear?
- a. 8:15 A.M.      b. 9:19 A.M.      c. 10:15 A.M.      d. 10:19 A.M.

36. Sometimes Roman Numerals are used in writing prescriptions. To specify the number of units to be dispensed, the notation *Disp iiss* is written. How much is *iiss*?
- a.  $2\frac{1}{4}$       b.  $2\frac{1}{2}$       c.  $2\frac{3}{4}$       d.  $11\frac{1}{2}$
37. A patient is being treated for diabetic ketoacidosis. The label on the insulin drip states: 2500 units / 500 cc D5. If the IV infuses (via a pump) at 10 ml/hr, how many units is the patient receiving per hour?
- a.  $\frac{1}{2}$       b. 5      c.  $5\frac{1}{2}$       d. 50
38. An IV was hung at 2:00 pm. It is a liter bag and is infusing at 65 ml/hr. How many hours and minutes will this bag last? (round to the nearest minute)
- a. 15 hr. 23 min.      b. 15 hr. 28 min.      c. 1 hr. 55 min.      d. 2 hr. 5 min.
39. You are asked to prepare 20 mL of a 50% dextrose solution. How much will you draw up into the syringe if the label on the 50 mL vial reads 25g / 50 mL?
- a. 2.5 mL      b. 5 mL      c. 20 mL      d. 25 mL
40. Bleach used for decontamination was set at 10% concentration. If the person mixing the solution uses  $4\frac{1}{2}$  cups of water, how much bleach should be used?
- a. 4 oz.      b. 10 oz.      c. 1 cup      d.  $1\frac{1}{2}$  cups
41. Medication required: 450 mcg  
Medication on hand: 0.3 mg scored tablets  
How many tabs should be administered?
- a.  $\frac{1}{2}$       b. 1      c.  $1\frac{1}{2}$       d.  $1\frac{3}{4}$
42. 0.15 mg qd. of a drug is prescribed. 0.05 mg/ml of the drug is available. How many mL per dose should be administered?
- a. 0.75 mL      b. 3 mL      c. 7.5 mL      d. 30 mL

**Determine the volume necessary to provide the following dosages. Express answers to the nearest tenth.**

43. The dosage strength available is 125,000 U per 1.5 mL. The order reads 175,000 U.  
a. 2.1 mL      b. 1.4 mL      c. 1.07 mL
44. The order is to give 30 mEq. The dosage available is 20 mEq in 15 mL.  
a. 10 mL      b. 22.5 mL      c. 60 mL      d. 40 mL
45. A 175 mg dosage is ordered. 0.35 g in 1.3 mL is available.  
a. 650 mL      b. 525 mL      c. 61.3 mL      d. 0.7 mL
46. The order is for 150 mcg. The available strength is 0.2 mg in 1.4 mL.  
a. 1.4m      b. 0.3mL      c. 1.1 mL      d. 21 mL
47. The available strength is 2 g in 2.6 mL. A dosage of 600 mg has been ordered.  
a. 0.8 mL      b. 5.2 mL      c. 3.3 mL      d. 8 mL
48. A dosage of 1250 U has been ordered. The strength available is 1000 U in 1.2 mL.  
a. 1.5mL      b. 1 mL      c. 1.2 mL      d. 1.1 mL

**Solve.**

49. What is the correct Roman numeral for 90?  
a. XC      b. IX      c. LXXXX      d. XM
50. I&O is being recorded for your patient. At breakfast he drank 1 cup of orange juice. At midmorning he drank a cup of water. For lunch he drank a cup of coffee and a 5 oz bowl of clear soup. At supper he drank a cup of tea and 8 oz bowl of broth. What was his total input in mL?  
a. 675      b. 450      c. 1200      d. 1350



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1	a	b		d
2	a		c	d
3		b	c	d
4	a		c	d
5	a		c	d
6	a	b		d
7		b	c	d
8	a		c	d
9	a	b	c	
10	a	b	c	
11	a	b		d
12	a	b		d
13	a		c	d
14		b	c	d
15		b	c	d
16	a		c	d
17	a	b		d
18	a	b	c	
19		b	c	d
20	a	b	c	
21	a		c	d
22		b	c	d
23	a	b		d
24	a	b	c	
25	a		c	d

26		b	c	d
27	a		c	d
28	a	b		d
29	a	b	c	
30	a	b	c	
31	a		c	d
32		b	c	d
33	a		c	d
34	a	b		d
35	a	b	c	
36	a		c	d
37	a	b	c	
38		b	c	d
39	a	b		d
40		b	c	d
41	a	b		d
42	a		c	d
43		b	c	d
44	a		c	d
45	a	b	c	
46	a	b		d
47		b	c	d
48		b	c	d
49		b	c	d
50	a	b	c	

incorrect 

a	b	c	d
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 correct 

a	b		d
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